

Figure 1: An illustration diagram showing the Non-Thermal Cyanoacrylate Venous Ablation Technique "CAVA".

Introduction

In recent years, endovenous thermal ablation (TA) has emerged as a reliable alternative to traditional open approaches in the treatment of superficial venous reflux.

Novel non-thermal Ablation techniques (NTA) including mechano-chemical ablation (MOCA) (Clarivein, Vascular Insights, Madison, CT, USA) and Cyanoacrylate closure (CAVA) (Venaseal, Medtronic, Santa Rosa, California, USA and Variclose, Biolas, Ankara, Turkey) have been developed with a view to removing thermal injury risk. These techniques preclude the risk of nerve damage while Cyanoacrylate closure obviates the need for post-interventional compression stockings.

Methods

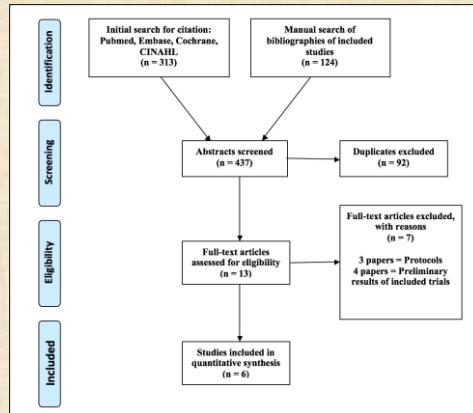


Fig 2: Under "Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) Guidance. Included studies compared NTA to TA testing the technical success, operative pain, complications, modification of disease severity and quality of life.

Similar Technical Success

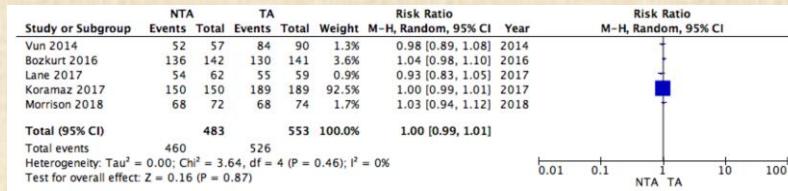


Fig 5: No statistical difference on overall technical success 460/483 (95.2%) of those receiving NTA and 526/553 (95.1%) for TA (Pooled Risk Ratio (RR)=1.00 [95% CI, 0.99,1.01]).

Lower hematoma rate

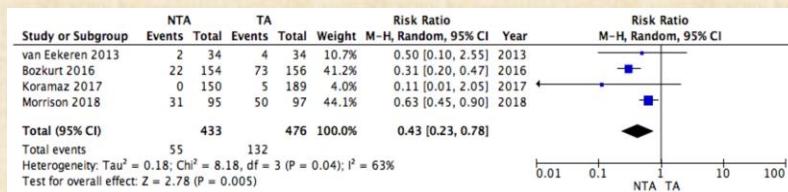


Fig 7: NTA associated with a significant reduction in rates of ecchymosis and haematoma formation compared to TA [RR=0.43 (95% CI, 0.23, 0.78)].

Similar other outcomes

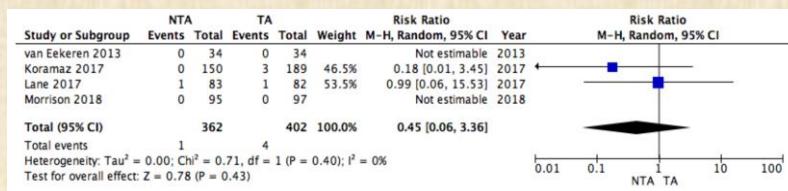


Fig 9: No statistical difference in post operative DVT rates. [RR=0.45 (95% CI, 0.06, 3.36)] However, only one DVT case was reported in NTA group compared to 4 in TA.

Selected Studies

Study	Morrison 2018	Lane 2017	Koramaz 2017	Bozkurt 2016	Vun 2014	Van Eekeren 2013
Study Design:	RCT	RCT	Retrospective	Prospective (non-randomized)	Prospective (non-randomized)	Prospective (non-randomized)
Duration:	24-months	6-months	12-months	12-months	6-weeks	6-weeks
Number of participants:	222	170	339	310	127	68
Interventions (randomised):	CAVA (n=108) RFA (n=114)	MOCA (n=87) RFA (n=83)	CAVA (n=150) EVLA (n=189)	CAVA (n=154) EVLA (n=156)	MOCA (n=57) EVLA (n=40)	MOCA (n=34) RFA (n=34)
Adjunct treatment of non-truncal varicosities:	None	Phlebectomies	Phlebectomies	Staged sclerotherapy or phlebectomies at 3-months	None	None
Mode of anaesthesia:	Local anaesthesia	Local anaesthesia	Not reported	Local anaesthesia	Not reported	Local anaesthesia

Fig 3: Characteristics of selected studies for the metaanalysis.

Less pain

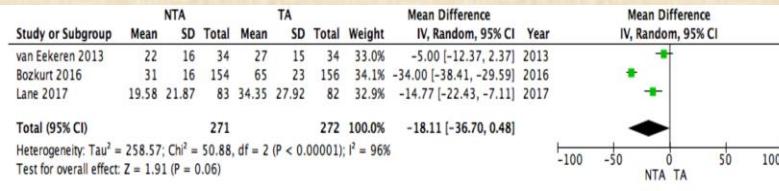


Fig 6: With using a visual analogue scale to assess periprocedural pain, a mean difference of -18.11 (95% CI, -36.7, 0.48) is favouring NTA was identified.

Better Quality of Life QoL

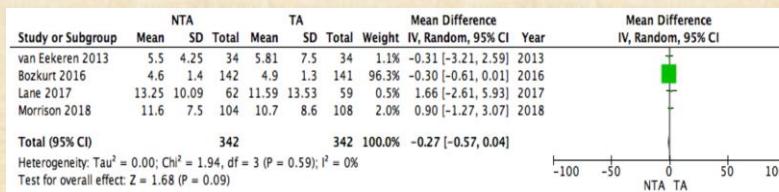


Fig 8: Comparison of Quality of Life QoL in both groups revealed a mean difference between groups of 0.27 (95% CI, -0.57, 0.04) favoring NTA.

Conclusion

Non-thermal ablation offers an effective and safe alternative to thermal ablation. Additionally, periprocedural pain data and marginally better QoL favor NTA. However, data were exposed to potential biases and there is a need for further powered trials to definitively examine this hypothesis.

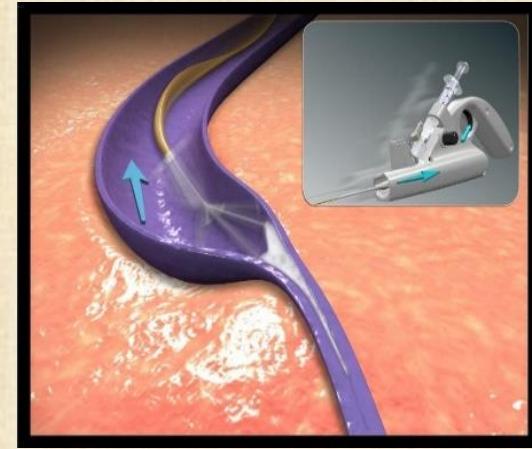


Fig 4: An animation of the MechanoChemical Endovenous Ablation "MOCA".

Poster Highlights

Type of research: A metanalysis and systematic review of comparative studies.

Key findings: Comparison of 1,256 thermal and non-thermal truncal ablations (NTA) revealed similar technical successes in both groups (Pooled Risk Ratio (RR)=1.00 [95% CI, 0.99,1.01]) with a lower rate of ecchymosis in the non-thermal group [RR=0.43 (95% CI, 0.23, 0.78)]. Complication rates were otherwise similar in both groups.

Take Home Message: NTA are safe and effective modalities in treating superficial venous incompetence with less pain.